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ABSTRACT OF AN ADDRESS ON MEDICAL EDUCATION.¹

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MR. PRESIDENT AND GENTLEMEN OF THE COUNCIL: The first medical college in this country was organized in 1765, in Philadelphia, by Drs. Morgan and Shippen. It was abandoned, however, during the revolutionary struggle, but was reorganized in 1783. Three other colleges were established — Harvard, King's College, New York, and Dartmouth — before the close of the eighteenth century. The curriculum as to time and mode of teaching established by these early colleges has not been materially changed to this day, save, perhaps, only in the way of a retrograde movement. Then, a good English education with some classical and scientific knowledge was required of the student; now, nothing. Then, as now, three years of study, — some authorities say four, — and the attendance on two courses of lectures, from two to four weeks longer now than then, were the prerequisites of a candidate for graduation.

At that time many important branches of medical knowledge were almost unknown to the profession. Anatomy was imperfectly taught; physiology and organic chemistry were in their infancy; little attention had been paid to diseases of the eye and ear, or to the diseases of women and children; the chemistry of the urine was not understood, and as a consequence we knew little of the diseases of the kidneys; nothing was known of physical diagnosis of the diseases of the heart and lungs, itself a study of months; little was known of the nervous system or its diseases, and nothing of electricity in their diagnosis and treatment. Sanitary science, histology, and the use of the microscope in medicine have opened up new and important worlds to the student of medicine, — all children of the present generation. What additions have been made to our *materia medica*, and what knowledge have we gained of the physiological and therapeutical action of drugs! Surgery, under anæsthetics, has pushed its domain far beyond the most sanguine dreams of our

¹ An Address presenting the Claims of the Medical Department. Read before a "Council" in the Interests of Syracuse University, held at Syracuse, N. Y., December 18, 19, 1878.

fathers, and still the end of the advance of medical knowledge, of the appliances and inventions introduced during the last century, is far from being reached. The field of medical inquiry has doubled, if not trebled, in the last hundred years, and yet no more time has been allotted to or required of the student to learn his task. The student then had little to do, or he is greatly overworked now, or his work is not half done. How inconsistent to continue such a system!

At an early day in the history of medical education in this country the many imperfections of the system were distinctly pointed out and deprecated, and were tolerated only because of the sparseness of the settlements and the general poverty of the students and the country. The people needed doctors, even though they were too poor to pay a well-educated profession. But we have outgrown all this. There is no longer any excuse in this direction for an indifferent medical education. As a nation we are rich. No people on the face of the globe are so well fed, clothed, and housed, or enjoy so much of this world's goods, as the people of this country. We are certainly rich enough to ask for the best possible medical profession, and an occasional consulting fee of five hundred dollars ought to satisfy the cupidity of the highest culture.

To ordinary intelligent thought, if medical science can be presented in a sixteen or twenty weeks' course of lectures, the science would seem to be but little more than a bubble. And yet this is what our medical colleges aim to do. It is true that they give from six to seven hours' talk a day. This, to most minds, would appear more like confusion than knowledge. But the same lectures are repeated winter after winter, with slight variations, and they ought to be listened to for three or four winters to be properly learned and digested.

The world is moving on the subject of hygiene in our public schools; but what is the hygiene of our medical schools, the place above all others where we ought to look for the observance of sanitary law? What law of educating the mind do medical colleges obey? or, rather, what law do they not disobey? But with all possible crowding they must fail to do justice to medical science in a twenty weeks' course of instruction.

As a nation we may be abreast or in advance of other countries in our free public schools and the general intelligence of our people, but in the matter of medical education — an education fraught with so much interest to us all, the preservation of our own lives and the lives of our loved ones, the most choice blessings and gifts of earth — we are far behind every other enlightened nation on the globe, and even behind nations that we are apt to think of as half-civilized. Not that we have not many eminent physicians and surgeons, self-made men, far beyond the culture of the schools, an honor to the profession and country, and to whom the world is indebted for many important discoveries that give

to the profession of the country a world-wide reputation. It is not the head and front of the profession to whom we refer, but to the ordinary graduate as he comes from college under our system of instruction and methods of granting degrees, and who still has a heavy percentage of work to do to acquire a good medical education.

We have already stated that the time of study in this country is three years. Now in Canada and Great Britain the time of study is four years, and from eight to nine months in each year are to be spent in college and in attendance on hospital practice. A good preparatory education is required; the studies are graded, with frequent examinations for advancement, the examinations being conducted outside of the teaching faculties. All this, however, does not apply to Canada. Germany and France require near five years of study; in the Austro-Hungarian empire, Italy, Portugal, Russia, Australia, Belgium, and Denmark five years are compulsory; while in Holland, Chili, Brazil, Cuba, and Venezuela six years of study are thought to be necessary to qualify one to practice medicine; and still longer periods are required in Norway and Sweden. In all those countries a suitable general education is requisite, with frequent examinations for advancement to higher classes; the studies are graded, so that the student is not studying everything at once. American medical education in want of thoroughness, system, and order presents a humiliating picture when compared with the education of the nations of the Old World, as well as with those of the New. But let us look a little into the workings of this cheap medical education, — cheap in time and acquirements.

Our colleges are overstocking the market with their three thousand graduates a year, a heavy percentage of whom finally abandon the profession with disappointed hopes, and devote their energies to some other more lucrative employment. From the cheapness of American diplomas, and from the few unenforced legal restrictions on the practice of medicine, with or without a diploma, and without any known qualifications whatever, we have one doctor to every six hundred inhabitants, while a few miles from here, just over the Canadian border, they have only one to 1200 inhabitants, while in Great Britain there is but one to 1672.

France has one to	1814
Germany has one to	3000
Belgium has one to	2048
Austria has one to	2500
Italy has one to	3500
Norway has one to	3480

Thus we have two doctors in the United States to one in Canada, nearly three to one in Great Britain, more than four to one in France, and five to one in Germany. The just relative proportion of doctors to population has been variously estimated at from one in 1500 to one

in 2500. The present average of the civilized world would probably fall within these limits.

The number of doctors in a country does not seem to be altogether regulated by the law of supply and demand, but by the standard of education. As the educational standard lowers, numbers increase; as it rises, they decrease. In Great Britain for the last twenty years prior to the present decade the proportion of doctors to population has been on the decrease. It has been thought that the exacting examination for a license to practice deters many young men from entering the profession. If this is the true cause there would seem to be a law of limit to a higher culture, beyond which it could not be carried without detriment to the public good; but as our supply is so much in excess of the demand, double that of every other country, there can be no danger of a scarcity of doctors here if a substantial advance is made in the requirements for graduation.

Medical colleges have multiplied in this country from four in 1800 to eighty in 1875. Sixty-five are teaching rational medicine, eleven are homœopathic, and four are eclectic. This would seem to be an unwarrantable increase of colleges, certainly so as they are now conducted; however, numbers would not matter so much if their students were to be examined by an independent board for a license to practice.

In proportion to population, we have one medical school to one in Canada; two to one in Great Britain; three to one in Belgium, Germany, Italy, Norway, and Sweden; twelve to one in Austria, Brazil, and France; and as far as we have any information on the subject there is annually one graduate in medicine in the United States and Canada to 15,000 inhabitants, one to 18,000 in Great Britain, one to 48,000 in France, and one to 68,000 in Germany.

And yet, as already stated, we have two doctors to one in Canada, and nearly three to one in Great Britain. This would look as though less than half of our physicians came from the colleges. In a single foreign medical journal, in the matter of medical statistics, in the matter of college management, the number of students in attendance, the character of the examinations, the number of successful and unsuccessful candidates, and the general condition and progress of medical education and the profession, may be found more information on all these subjects in Great Britain and several continental powers than can be found in all the medical journals of this country, as far as my knowledge extends, on like matters of interest to the profession. Unfortunately, we have no cosmopolite journal, national in its character, that throws its arms alike, and for the best interest of all, around the student, the college, the profession, and the people. The colleges for the most part are closed books, and the profession has no ready means of becoming acquainted with itself.

In general, competition improves the quality of the product. The reverse is the case with medical schools, as shown in the falling off of the classes in all the colleges that have raised the standard of education. Harvard's classes shrink on the new plan of a three years' graded course of instruction and a lengthened college year of nine months, notwithstanding her age, prestige, and influential alumni. The average medical student "takes no stock" in a higher medical education.

The attorney is examined to practice in the courts and the divine to enter the pulpit, but we have an army of doctors practicing without the semblance of a sheepskin, — wolves in sheep's clothing, preying on the lambs of the flock. It is believed there are medical signs in this city now that represent nothing but ignorant criminal abortion.

The State of Illinois passed a law, which took effect July 1, 1877, establishing a state board of health, with power to act as a state board of medical regents. In one year this board "examined three hundred and sixty-six applicants for the license to practice, and rejected two hundred and twenty-one of them; it has driven one thousand two hundred unqualified practitioners out of the State; has stopped eight colleges from giving two graduating courses in one year; has refused to accept or to recognize the diplomas of eight medical schools; and has revoked six certificates for gross unprofessional conduct."

In this rapid multiplication of schools the Syracuse University has not been guilty of inflicting on the country another new school of the old sort. Your medical department is an old school, — Geneva Medical College, moved to Syracuse, organized about 1838, when there were but seventeen schools in the country. Four of the old professors still fill chairs in the college faculty.

From the inception of its removal, and in its first annual announcement in 1872, an optional three years' graded course of instruction was inaugurated, with a college year of nine months, of which but few students took advantage; enough, however, to test the merits of the system. The superior attainments of those who had thus studied through the lengthened college year, under even an imperfect system of graduation, over those who had attended the usual two courses of lectures was so marked when they came up for their final examination for the degree of M. D. that the faculty at once abandoned the old and the optional course of study for the new. In 1875 they adopted in full a three years' graded course of instruction, with written and oral examinations for advancement into the second and third years, with evidence of a good English education before entering the college. Every year's experience brings new evidence to justify the change. The change of plan of instruction has, no doubt, emptied some of our seats.

The colleges are equally greedy to fill their benches and swell their graduating classes for the prestige of numbers and the dollars they

bring, without any very high regard for the acquirements of their students, and it is believed that the examination for the degree of M. D. in many American colleges is often very superficial, almost a farce, and the possession of a diploma is no real guarantee of medical scholarship, — certainly no guarantee of scholarship like an Old World diploma.

In corroboration of these statements we may say that very few candidates for graduation are rejected in this country ; I do not know just what per cent., but probably not more than two or three, notwithstanding all the looseness of college instruction common to the country. However, at Harvard, in June last, of the seventy-two candidates six withdrew their names, forty-seven succeeded, and nineteen were rejected. In Great Britain the questions and the number of candidates passed and rejected are published ; on these subjects in this country the profession and public are almost entirely ignorant. But in Great Britain, under their graded, more systematic, and longer period of study, it is no uncommon thing for twenty or thirty per cent. of their candidates for medical honors to be rejected and sent back to the colleges for six months' further study, for they are examined by a board outside and quite independent of the colleges.

In May last, sixty-eight students presented themselves before the Royal College of Surgeons, England, to pass a higher grade, thirty-six of whom were rejected ; and still later, twenty-eight candidates presented themselves for fellowship, seventeen of whom failed to satisfy the court of examiners. We have no such guards as these in this country to protect the people from an ignorant medical profession.

In 1876 five or six medical faculties issued a call for a convention of medical colleges, to assemble in Philadelphia, on the 2d of June, "to consider all matters relating to reform in medical college work." This was a new departure, and much was hoped and expected from the convention. It was hoped that a new era was about to open up in medical education with the dawn of the second century of the republic, and that the old and inefficient system of instruction that was forced upon the colonies and on the republic in its early days by the exigencies of the time was about to give place to a plan of education commensurate with the advance of science and in accordance with the growth and general advancement of the country.

Syracuse sent two delegates to the convention, but the first morning's session revealed its character to such an extent that one delegate left it in disgust, and the other attended but one more session. They saw no heart or soul in it for anything better or higher in medical education. These early convictions proved but too true. The fruits of that convention are on my table in the way of the history, constitution and by-laws, and work of the American Medical College Association, which holds in its membership twenty-four or more colleges, and they show by

negative evidence a disgraceful rottenness in American medical colleges past belief, had it not been thus semi-officially announced.

They reveal the fact that the colleges have openly solicited, by "wholesale," students to fill their benches almost or entirely without charge. The association resolved "that no medical faculty should issue a diploma not bearing the graduate's name," and that "no degree in medicine should be conferred under any circumstances except after an examination in person of the candidate upon all the branches of medicine." Diplomas signed and ready for sale! Degrees conferred without personal examination, and students gathered in by "wholesale" without fees! Did this convention on these subjects legislate "and resolve" against phantoms or against facts? Is it any wonder that medical education is at a low ebb, and that the profession is overcrowded?

Thanks to the American Medical College Association for the attempt to suppress these abuses. But more was expected of the convention than the enforcement of common honesty in high places. Beyond this, in our judgment, the objective point of the association is mercenary, — simply a college trades-union for the better collection of college fees. "The objects of this association," as set forth in the constitution, "shall be the advancement of medical education in the United States, and the establishment of a common policy among medical colleges in the more important matters of college management." This is the beginning and the end of the advancement of medical education by the association. It tells the same old story of more than one hundred years in regard to two courses of lectures, required time of study, age, moral character of the student, not of the college, etc., etc., with two slight changes only. For some time the lecture term has been twenty weeks in a few colleges; now it is to be twenty weeks in all. Formerly the time of study was three years; now, two years and nine months. Two to four weeks added at one end and three months taken off at the other! We fail to see the "advancement;" however, it must be there or somewhere else, for that is the object of the association.

The association acted with great consideration to get things ready to prevent any shock or disaster to this astounding and unlooked-for advance in medical education; it very kindly, in the enacting clause, postponed the full consummation of the great event for two years. There is still another resolution bearing on medical education, as follows: "This convention recommends to all medical colleges to offer to students the option of three courses of lectures." Three or four courses of lectures have always been at the option of the student. The practice adopted by some of the colleges of graduating two classes the same year is also prohibited by the association.

In this historical document there are no less than eight sections pertaining to medical fees. The students must pay up in cash, and the

colleges are not to be filled hereafter with students by "wholesale" without fees. All these provisions are to take effect immediately. The glory of the American Medical College Association in "the advancement of medical education in the United States" is yet to come. It possesses great power for good, and we trust usefulness and honor lie in its future pathway.

If the twenty-four colleges in the association are really in earnest for reform, and the six or seven colleges, not members, who have already adopted a curriculum of real reform, with two or three more added to the list, we should have a working majority of all the colleges in the country, and now even the moral force of the present minority in adopting so just a course would win over other colleges, from principle; the balance would soon follow, from the disgrace and loss of caste attendant on adhering to the wrong. Still farther, if the profession were united, the American Medical Association, the state and county medical societies, could refuse to recognize the diplomas and the colleges still working on the lower plane.

This American Medical College Association is an imperial congress in medicine for this country. It has strength and power; there is no authority above it in matters pertaining to the standard of medical education. It has already exercised its prerogative over the length of the college year and time of study. Will it now strike the key-note of a higher medical education? Will it elevate the standard, or continue to trail it in the dust?

There is one further step in the way of reform that this college is desirous should be taken, and that is an independent board to examine the students for medical honors.

We are prepared to petition the legislature of the State of New York to appoint a medical board of regents to examine all the candidates from the colleges in the State for the degree of M. D. If New York, Albany, and Buffalo would join in the petition, we might possibly have such a board before the close of the present college year.

But let us inquire as to the probable effect of the general adoption of a three years' graded course of instruction, with a lengthened college year. On the present plan, a college with an average class of two hundred students would receive one hundred new students and graduate one hundred every year. On the new plan, with an average entering class of one hundred, the class would consist of three hundred in place of two hundred. If the lecture fees were fixed at one hundred dollars, the annual income of the college on the old plan would be twenty thousand dollars, on the new thirty thousand dollars; or with a charge of a half fee for the third year, as in this college, it would still be twenty-five thousand dollars.

But there would probably be a falling off in the actual number of

medical students; they might shrink one third on the three years' plan, though it is believed they would not, and still the college class and income be undisturbed. Prospectively, the change would add students to the classes and dollars to the college coffers.

There has always been a small percentage of students dissatisfied with the advantages of the American college system (and it is believed to be largely on the increase), who have continued their studies abroad for one year, two years, or more after graduating in this country before entering into practice. But the student need not go abroad to continue his studies, except as a matter of ornament, for we have at home the requisite knowledge, talent, and ability to teach all that is valuable in medicine if it were properly incorporated into our college system. Notwithstanding what we have said of colleges and graduates, we believe the American mind to be more practical than the European, and with equal knowledge the American is the better man at the bedside.

The outlook, as a result of the change, is for the better in every direction; better for the college, better for the student and patient, not even "partial evil" for "universal good." But how can it be done? Just issue the next annual announcement on the new plan, and work to it, as the Chicago Medical College, Harvard, Syracuse, Michigan, and the University of Pennsylvania have done. The Johns Hopkins Hospital Medical School is to be conducted on the graded plan, and now, while we write, we hear that the University of California and the Medical College of the Pacific have fallen into line. "Where there is a will there is a way."

But it has been contended in several quarters that only through endowed professorships can a higher college culture be attained or maintained. If this is the only basis for reform, reform is afar off, somewhere among the distant ages. What intelligence can have patience with such twaddle? Moonshine! nonsense!

One of the latest utterances on this subject comes from a venerated and honored teacher, Prof. Frank H. Hamilton, who delivered the annual address before the American Academy of Medicine, at Easton, Pa., in September last,¹ and to whom we would offer a tribute of affection and respect, as one from whose eloquent lips, near half a century ago, we received our first lessons in surgical science. He says that in all the efforts of the colleges in the direction of a higher medical education, "not one of them has ventured a step beyond what was deemed safe in a pecuniary point of view. Nor will they." As a whole, the tendency of the address is conservative, apologetic for the evils it so forcibly presents and condemns. It sees no way out of the maze except through endowed professorships. However, the whole evil is made to hinge on the possible loss of the "almighty dollar." But we hope we have al-

¹ New York Hospital Gazette, October 3, 1878.

ready shown that this part of the argument in favor of the old system is a bugbear.

The medical colleges of Great Britain are not endowed, and why must ours be to secure a higher medical education? Teachers there, as here, are paid from college dues, while on the Continent the management of the schools is more or less directly under the control of the governments, and the salaries of the professors are fixed, students or no students, at sums varying from six hundred to two thousand six hundred dollars a year.¹

But your medical department adopted the graded plan without endowment and without much regard to pecuniary results. It saw the better way, and walked therein, and has maintained itself for four years, — not, however, without some self-sacrifice, — and it still proposes to maintain itself.

From this outline sketch of medical education at home and abroad, we can see something of our national position in the world of medicine. It is flattering neither to our pride nor to our intelligence. We hope the advanced position taken by the medical department of this university will meet your approval and commendation; that you may give us both moral support and material aid, at least to such an extent as to clear the college property from indebtedness.

The needed reforms would seem to be some standard of preparatory education, a graded course of instruction extending over a period of three, if not of four or more years. If the reform is to be radical and complete, five years are as much of a necessity now as three were one hundred years ago, with lengthened college year, annual examinations for advancement, and a final examination by a board independent of all teachers and colleges, thus giving a real and a uniform value to all diplomas.

RECENT PROGRESS IN THE THEORY AND PRACTICE OF MEDICINE.

BY A. L. MASON, M. D.

Germ Theories. — Dr. John Drysdale,² in the inquiry as to the intimate nature of the miasm or infectious matter on which diseases depend, reduces the exciting causes to parasitic germs and graft germs, or “partial bions.” The experiments of Tyndall show that all ordinary air contains ultra-microscopic organic matter, and that noxious living matters may be wafted hither and thither in apparently pure air. But as bacteria are easily demonstrated and microphytes are certainly present

¹ These and many other facts of the paper have been obtained from the Introductory Address of Prof. William Pepper, A. M., M. D., of the University of Pennsylvania, delivered October 1, 1877.

² *The Germ Theories of Infectious Diseases.* London, 1878.